

43. (Amended) The method of claim 138 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

44. (Amended) The method of claim 138 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

45. (Amended) The method of claim 138 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

56. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.60:1.

57. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

58. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

59. (Amended) The method of claim 139 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

60. (Amended) The method of claim 147 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

64. (Amended) The method of claim 155 wherein said first density is at least about 1 pcf less than said second density.

65. (Amended) The method of claim 155 wherein said first density is at least about 2 pcf less than said second density.

66. (Amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising  $\alpha$ -methyl styrene and salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

67. (Amended) The method of claim 64 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

68. (Amended) The method of claim 65 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

69. (Amended) The method of claim 139 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

70. (Amended) The method of claim 139 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

71. (Amended) The method of claim 139 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

72. (Amended) The method of claim 139 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

73. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

74. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

75. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

76. (Amended) The method of claim 147 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

77. (Amended) The method of claim 56 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

78. (Amended) The method of claim 56 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

79. (Amended) The method of claim 56 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

80. (Amended) The method of claim 56 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

85. (Amended) The method of claim 58 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

86. (Amended) The method of claim 58 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

87. (Amended) The method of claim 58 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

88. (Amended) The method of claim 58 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

89. (Amended) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

90. (Amended) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

91. (Amended) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

92. (Amended) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

93. (Amended) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

94. (Amended) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

95. (Amended) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

96. (Amended) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

97. (Amended) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

98. (Amended) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

99. (Amended) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

100. (Amended) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

101. (Amended) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

102. (Amended) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

103. (Amended) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

104. (Amended) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

109. (Amended) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

110. (Amended) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

111. (Amended) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

112. (Amended) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

113. (Amended) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

114. (Amended) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

115. (Amended) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

116. (Amended) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

117. (Amended) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.



118. (Amended) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

119. (Amended) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

120. (Amended) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

121. (Amended) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

122. (Amended) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1.

123. (Amended) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

124. (Amended) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

125. (Amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing

salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

126. (Amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.45:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

127. (Amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

128. (Amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase, wherein at least 80 wt.% of said salts of

neutralization are removed in one or more aqueous streams and wherein said first density is at least about 2 pcf less than said second density.

Please add the following new claims:

129. (New) The method of claim 56 wherein said organic diluent comprises a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent.

130. (New) The method of claim 57 wherein said organic diluent comprises a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent.

131. (New) The method of claim 58 wherein said organic diluent comprises a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent.

132. (New) The method of claim 56 wherein said first density is at least about 1 pcf less than said second density.

133. (New) The method of claim 57 wherein said first density is at least about 1 pcf less than said second density.

134. (New) The method of claim 58 wherein said first density is at least about 1 pcf less than said second density.

135. (New) The method of claim 56 wherein said first density is at least about 2 pcf less than said second density.

136. (New) The method of claim 57 wherein said first density is at least about 2 pcf less than said second density.

137. (New) The method of claim 58 wherein said first density is at least about 2 pcf less than said second density.

138. (New) A process for manufacturing phenolic compounds comprising:  
means for separating a neutralized aralkyl hydroperoxide cleavage mass stream comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;

means for separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenolic bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;  
means for separating at least a portion of said remainder of said phenolic compounds from said crude phenolic bottoms stream into an organic phase.

139. (New) A process for manufacturing phenolic compounds comprising:  
separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;  
separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;  
treating said crude phenol bottoms stream with a quantity of an organic diluent effective to solubilize said remainder of said phenolic compounds;  
allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase.

140. (New) The method of claim 139 wherein said organic diluent comprises a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent.

141. (New) The method of claim 139 wherein said first density is at least about 1 pcf less than said second density.

142. (New) The method of claim 139 wherein said first density is at least about 2 pcf less than said second density.

143. (New) The method of claim 139 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

144. (New) The method of claim 140 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

145. (New) The method of claim 141 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

146. (New) The method of claim 142 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

147. (New) A process for manufacturing phenolic compounds comprising:  
separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;  
separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;

treating said crude phenol bottoms stream with a quantity of an organic diluent effective to solubilize said remainder of said phenolic compounds, wherein a weight ratio of said organic diluent to said crude phenolic bottoms stream is at least 0.15:1; allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase.

148. (New) The method of claim 147 wherein said organic diluent comprises a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent.

149. (New) The method of claim 147 wherein said first density is at least about 1 pcf less than said second density.

150. (New) The method of claim 147 wherein said first density is at least about 2 pcf less than said second density.

151. (New) The method of claim 147 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

152. (New) The method of claim 148 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

153. (New) The method of claim 149 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

154. (New) The method of claim 150 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

155. (New) A process for manufacturing phenolic compounds comprising:

separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization; separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds; treating said crude phenol bottoms stream with a quantity of an organic diluent effective to solubilize said remainder of said phenolic compounds, wherein said diluent has a first density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase; allowing said mixture to phase separate, recovering said phenolic compounds in said organic phase.

#### **REMARKS**

Applicant notes that the examiner has renumbered claims 57-126 to 58-128. The dependency of the claims has been corrected accordingly in the foregoing amendments. The amendments are made to correct a clerical error in claim numbering, and not for a reason related to patentability. The amendments to claim numbering do not narrow the claims.